DOCUMENT RESUME

ED 307 131 SE 050 585

TITLE The Effectiveness of the Mathematics, Engineering, Science Achievement (MESA) Program's Administrative and Policy-Making Processes. A Report to the Legislature in Response to Assembly Bill 610 (1985). Commission Report 89-4.

INSTITUTION California State Postsecondary Education Commission, Sacramento.

PUB DATE Jan 89

NOTE 28p.

PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS Administration; College Science; *Engineering Education; Higher Education; Mathematics Education; *Minority Groups; *Policy Formation; *Science Careers; Science Education; *Science Programs; *Scientific Personnel; Secondary Education; Secondary School Mathematics; Secondary School Science

IDENTIFIERS *California

ABSTRACT

The Mathematics, Engineering, Science Achievement (MESA) Program was established in 1970 to increase the number of minority students in college programs. This paper reports the MESA administrative operations and policy-making processes. Part 1 summarizes the background of this study. Part 2 describes MESA's administrative operations and provides evidence on the extent to which the program is functioning as "a cooperative effort of secondary and postsecondary educational institutions working with private industry." Part 3 discusses MESA's policy decision-making process, with particular attention to the extent to which its board of directors is functioning as prescribed in the law. This section includes a brief discussion of the extent to which MESA is achieving its goal. Finally, part 4 presents four conclusions about MESA and four recommendations to enhance its administrative and policy-making process for the future. Appendices include: (1) "Assembly Bill 610 (1985)"; (2) "MESA's Industry Advisory Board"; and (3) "MESA's Board of Directors." (YP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

SE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

E. Testa

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED307131

THE EFFECTIVENESS OF THE MATHEMATICS, ENGINEERING, SCIENCE ACHIEVEMENT (MESA) PROGRAM'S ADMINISTRATIVE AND POLICY-MAKING PROCESSES

MESA
MATHEMATICS • ENGINEERING • SCIENCE ACHIEVEMENT

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

SE 050 595

BEST COPY AVAILABLE

Summary

Faculty members of the University of California, Berkeley, established the Mathematics, Engineering, Science Achievement (MESA) Program in 1970 to increase the number of underrepresented minority students who have sound academic preparation by giving them the background to complete successfully a college program in engineering, mathematics, and science-based disciplines. MESA directs its efforts at the junior high school, senior high school, and postsecondary levels.

In January 1985, the Commission issued its first report on MESA, and it supported Assembly Bill 610 (Hughes, 1985) which included MESA in California statute. A provision of that legislation directed the Commission to report on MESA's administrative operations and policy-making processes by January 1989. This report fulfills that obligation by commenting on the effectiveness of MESA's administrative and policy-making processes. A full-scale program review of MESA will be forthcoming through future Commission evaluations of intersegmental programs in general.

This report concludes that:

- MESA continues to function as a cooperative effort involving secondary and postsecondary educators in conjunction with private industry to prepare and encourage students from historically underrepresented backgrounds to prepare for and succeed in mathematics-based fields in college.
- MESA's Board of Directors is meeting its legislative mandate in terms of its composition and operations.
- Participants in MESA are succeeding in mathematics-based disciplines in secondary school and college in higher proportions than their classmates generally as well as those majoring in engineering.

On pages 12-13, the report contains two recommendations related to MESA and two related to intersegmental educational equity programs in general, including MESA:

1. Given its effectiveness, the sunset date clause of MESA should be removed from statute.
2. Because MESA depends heavily on support from the private sector, particularly in terms of personnel and services, to enrich the educational experience for participating students, it should improve its capacity to account for these indirect contributions.
3. Intersegmental programs designed to improve the preparation and success of students for college, especially those students from underrepresented backgrounds, should seek to enhance their involvement with the private sector.
4. The Commission should review the current process established by the systems for reviewing intersegmental program budgets as a first step in developing recommendations for the State with respect to a budgetary process that is responsive to the administrative and programmatic uniqueness of all intersegmental programs and practices.

The Commission adopted this report on January 23, 1989, on recommendation of its Policy Evaluation Commission. Additional copies of the report may be obtained from the Library of the Commission at (916) 322-8031. Further information about the substance of the report may be obtained from Penny Edgert of the Commission staff at (916) 322-8028.

THE EFFECTIVENESS OF THE MATHEMATICS, ENGINEERING, SCIENCE ACHIEVEMENT (MESA) PROGRAM'S ADMINISTRATIVE AND POLICY-MAKING PROCESSES

A Report to the Legislature in Response to Assembly Bill 610 (1985)

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
Third Floor • 1020 Twelfth Street • Sacramento, California 95814-3985

COMMISSION REPORT 89-4
PUBLISHED JANUARY 1989

This report, like other publications of the California Postsecondary Education Commission, is not copyrighted. It may be reproduced in the public interest, but proper attribution to Report 89-4 of the California Postsecondary Education Commission is requested.

To CHARLES TUNSTALL

Whose extraordinary commitment,
energy, and intellect contributed
immeasurably to the MESA program
and, most importantly, to the
students that it seeks to serve.

Contents

1. Background of the Study 1

Organizational History of MESA 1

Origin of This Study 2

Content of the Rest of This Report 2

2. MESA's Administrative Operations 5

Involvement of Educational Systems 5

Involvement of the Private Sector 6

Resources Supporting MESA 6

3. MESA's Policy-Making Processes 9

Composition of MESA's Board of Directors 9

Responsibility of MESA's Board of Directors 9

Program Effectiveness 10

4. Conclusions and Recommendations 11

Summary 11

Conclusions and Recommendations 12

Appendix A: Assembly Bill 610 (1985) 15

Appendix B: MESA's Industry Advisory Board 19

Appendix C: MESA's Board of Directors 21

References 23

1 Background of the Study

IN 1970, faculty at the University of California, Berkeley, who were concerned about the lack of representation of American Indian, Black, Mexican-American, and Puerto Rican students in mathematics-based fields decided on their own volition to initiate a program to address this issue. From this initial effort, the Mathematics, Engineering, Science Achievement (MESA) Program has evolved into an intersegmental program designed to:

> increase the number of minority students who have sound academic preparation, giving them the background to complete successfully a postsecondary education in science and mathematics-related disciplines. MESA directs its effort toward minority groups currently underrepresented in junior high school, senior high school, and postsecondary engineering, mathematics, and science-based courses and disciplines (MESA By-Laws).

Presently, MESA is a program with three interrelated major components:

1. The original pre-college program focuses on high school students beginning in Grade 9. This component is centered at 16 California colleges and universities, where staff coordinate the delivery of services to 3,500 students in local high schools.
2. The college-level Minority Engineering Program (MEP) originated in 1973 at California State University, Northridge, to help minority students majoring in mathematics-based fields. In 1982, the State provided resources to expand this MEP component, which presently operates on 18 postsecondary sites; including 12 California State University campuses, five University of California campuses, and one independent university -- the University of Southern California. In 1987-88, nearly 2,500 college students participated in this component.
3. Recognizing the necessity to intervene earlier than the senior high school level, MESA piloted a junior high school component in 1983 with resources provided by the Carnegie Corporation of New York. At present, all 16 pre-college centers operate "Junior" MESA programs at 57 junior high schools, where approximately 1,500 students participate.

Organizational history of MESA

Four phases of MESA's organizational history provide the context for this report:

Phase I: Until 1979, MESA relied exclusively on postsecondary institutional and private sector resources.

Phase II: In 1979, the State began supporting MESA through the budgets of the State Department of Education, the California State University, and the University of California, in order to stimulate their involvement in the program. In turn, these systems funneled their State appropriations to the Berkeley campus.

Phase III: After reviewing this budgetary mechanism, the Legislative Analyst recommended in 1983 that State resources be allocated to the program through one agency for the purpose of simplifying the flow of funds. Based on that recommendation, the State Department of Education became the conduit for State resources, although it had no administrative responsibility for those funds other than to transfer them to the Berkeley campus.

Phase IV: In the 1984-85 Budget Act, the Legislature included Supplemental Language directing the Commission to examine the administrative operations of MESA and recommend improvements, if needed, in its functioning. The Commission recommended that:

> the State appropriation for MESA be shifted to the University of California with an agreement that the funds be provided to the Berkeley campus's Lawrence Hall of Science for allocation to campuses of the University of California and the State University and to secondary schools through the State Department

> of Education; and that the Statewide MESA office, in consultation with the Lawrence Hall of Science, the MESA Board of Directors, the systemwide offices of the University and State University, and the State Department of Education establish a process that insures the participation of all parties in the development and support of the MESA budget (1985, p. 8).

Upon completion of that study and following the Commission's recommendation, MESA was included in California statute for the first time through the passage of Assembly Bill 610 (Hughes, 1985), a copy of which is contained in Appendix A of this report, and which directed that State resources for MESA flow through the University of California to the Berkeley campus. More recently, the State University has requested and received augmentations for MEP projects located on its campuses through the annual State Budget process.

Origin of this study

The introduction of AB 610 raised concerns that the intersegmental nature of MESA might diminish because of its placement of budgetary and administrative authority and responsibility for the program exclusively within the University of California. To address this concern and monitor MESA as a State program, AB 610 directed the Commission to report on the administrative and decision-making mechanisms specified in the law:

> Prior to January 1, 1989, the California Postsecondary Education Commission shall report to the Legislature regarding all of the following:
>
> (a) Whether MESA is operating as a cooperative effort of secondary and postsecondary educational institutions working with private industry, as specified in Section 8604.
>
> (b) Whether the MESA Advisory Board is functioning as specified in Section 8606.
>
> (c) Recommendations for the improvement of MESA operations, as appropriate and consistent with legislative intent stated in Section 8600.

In this report, the Commission responds to that legislative directive within the context of examining the extent to which the administrative and budgetary alliance with the University has affected the character of MESA. Further, it focuses on the intersegmentality of the program with respect to MESA's administrative and policy decision-making operations -- in contrast to past and future scheduled Commission studies that center on MESA's effectiveness in meeting its goals. Finally, this study provides an opportunity to identify if there are generic structural and operational aspects of intersegmental programs that are of concern and should be discussed at a statewide level.

For this report, the Commission compiled information on the basis of:

- Staff attendance at a meeting of MESA's Board of Directors and a review of minutes of other meetings;
- Interviews with past and current chairpersons of the Board;
- A survey of members of MESA's Board of Directors and its Industry Advisory Board;
- An interview with the director of the Lawrence Hall of Science -- the Berkeley campus administrator responsible for overseeing the program.
- Interviews with University of California officials responsible for communicating within the University MESA's resource needs and for allocating State resources to MESA;
- Interviews with MESA's statewide program staff; and
- Discussions with center program directors.

Content of the rest of this report

This report contains three additional sections:

- Part Two describes MESA's administrative operations and provides evidence on the extent to which the program is functioning as "a cooperative effort of secondary and postsecondary educational institutions working with private industry."
- Part Three discusses MESA's policy decision-making process, with particular attention to the extent to which its Board of Directors is functioning

as prescribed in the law. Because the ultimate criteria by which to judge the quality of decision-making is program effectiveness, this section includes a brief discussion of the extent to which MESA is achieving its goal.

- Finally, Part Four presents four conclusions about MESA and four recommendations to enhance its administrative and policy-making process for the future.

2 *MESA's Administrative Operations*

IN THIS section of the report, the Commission assesses the extent to which MESA is an effective cooperative effort among secondary and postsecondary educators in conjunction with private industry. Understanding the administrative structure of the program provides insights into the nature of this cooperative endeavor.

Involvement of educational systems

There are three administrative levels of MESA: (1) its Statewide Office, (2) Project Centers, and (3) School Sites. The degree of involvement of educational systems differs by these administrative levels.

Statewide office

MESA is administered through the University of California, Berkeley, and its Statewide Office is located at the Lawrence Hall of Science -- a Berkeley campus facility identified with mathematics and science education. The office is headed by a director who reports to the director of the Hall -- the Berkeley administrator responsible for overseeing the program for the campus. In turn, the director of the Hall reports to the provost of the professional schools on the campus. In addition to this campus-level structure, on matters related to allocation of State resources, MESA's director communicates directly with the University's assistant vice president for academic services in the Office of the President. While this organization appears to function effectively, there is an anomalous quality to the structure. As such, the University should consider reviewing this aspect of MESA's administrative operations.

The Statewide Office consists of a director and four full-time professional and five support staff who are employees of the Berkeley campus. The office coordinates the operations of the 16 pre-college and 18 college centers by:

- implementing program policy that has been developed with the advice of the Board of Directors -- an intersegmental body that includes representatives of private industry;
- allocating State and private sector resources;
- conducting nationwide fund-raising activities;
- performing evaluative and statistical functions;
- providing in-service training for program staff;
- monitoring progress of the program; and
- representing the program to various constituencies, including the executive branch of State government, the Legislature, educational systems, the private sector, and the general public.

Project centers

All of MESA's centers are located on university campuses. Their reporting relationships differ by center, although all MEP directors are associated with the engineering programs on their campuses. Staff at each center are employees of the host campus or its foundation. The centers develop their unique projects separately but under the general guidelines and policies of the Statewide Office.

School sites

At each school site, a MESA advisor -- usually a mathematics or science teacher -- provides the daily leadership for the program. MESA advisors have either been chosen by the school principal or have volunteered to assume this responsibility -- a contribution of resources that is difficult to quantify but is particularly valuable to the program.

Clearly, both secondary and postsecondary educators participate in MESA at all levels of the program. Secondary school involvement occurs through the MESA advisors, while postsecondary involvement proceeds through the program staff and through utilization of

campus facilities by students and staff, and accessibility to general campus services.

Involvement of the private sector

All three administrative levels of MESA -- statewide, center, and school -- have continuous involvement with representatives of the private sector.

Statewide office

At the statewide level, two boards have been established to assist the program:

- The Industry Advisory Board (IAB) consists of upper management executives who are appointed by MESA's director and the chair of the IAB. These individuals facilitate communication between the program and industry as well as advocate greater financial and personnel involvement from industry. The present members of this board are listed in Appendix B.
- The Industry Technical Board consists of representatives of the human resources and personnel divisions of participating companies. This board assists the program through facilitating the direct involvement of industry representatives with students, the creation of summer jobs and internships, and participation in MESA-sponsored activities.

Project centers

Each center receives support from a corresponding local Industry Advisory Board. As at the statewide level, these boards assist in securing resources and corporate involvement with the program.

School sites

At the school level, the involvement of private industry takes the form of participation at MESA school events by representatives from various companies. Further, a prominent feature of both the pre-college and college programs are visits to companies during which students explore career-related opportunities and establish connections with engineering professionals.

Resources supporting MESA

The extent to which MESA is a cooperative effort isdemonstrated most clearly by its several sources of support, which have included educational institutions, philanthropic foundations, private industry, and the State. The State and private industry are now MESA's two major sources of revenue, and the process for securing resources from them differs significantly, as indicated below:

State resources

State resources for MESA are obtained through the University of California budget process An agreement between the Berkeley campus and the Office of the President established a process by which, when program augmentations are sought, the MESA Statewide Office initiates the request directly to the assistant vice president for academic services of the University. That request competes with similar requests from other University units for consideration in the Office of the President. The priorities established through this internal process are included in the budgetary proposals forwarded by the University to the State Department of Finance. Those augmentation proposals that are approved by the Governor and the Legislature are included in the State Budget. In the years when MESA does not seek an augmentation, the State support for the program remains at its present level, with range and cost-of-living-adjustments (COLA) included consistent with the percentage adjustment received by the University that year.

In addition to the State resources that flow to MESA through the University of California, the California State University may request additional resources for those MEP centers located on its campuses. For the 1988-89 year, the State University requested and received an augmentation of $250,000 for its MEP centers. Despite this additional process available to the State University, the majority of resources for these centers continue to flow from the State appropriations in the University's budget for MESA.

Private sector resources

MESA secures private sector resources through a major development effort on the part of its Statewide

Office. Further, each center solicits funds from corporations in its local area.

Display 1 below illustrates the outcome of these resource solicitation processes for the last four years. Several facts of note are evident from this display:

- For each of the last four years, the ratio of private to State support has exceeded the expectations in AB 610, which required that MESA secure funds from private industry for each year in an amount at least equal to one-half of the State allocation. That is, the ratio between private and State resources is expected to approximate a 1 to 2 match -- or 50 percent. As can be seen from Display 1, the actual ratio has ranged between 54 and 68 percent.
- The rate of growth of resources from the private sector has outpaced the growth in the State allocation for each of the last three years.
- The vagaries of the State appropriations process is apparent from the display. For both 1986 and 1987, the increases in State resources represent augmentations. In 1986, $175,000 of new dollars were included in the MESA allocation to initiate the "Junior MESA" program; in 1987, an augmentation of $183,000 funded new MEP centers. In addition, for both those years, resources were allocated to cover the cost-of-living-adjustments (COLA) for salaries and benefits for MESA employees. In 1988, the increase in appropriations represented a range adjustment for salaries and benefits only and not a COLA based on the total dollars allocated to the total MESA program. As with most intersegmental programs, MESA spends the overwhelming majority of its State resources on employee salaries and benefits, which are set by the host institutions; however, MESA pays the salaries of all its employees. Because salary scales differ across institutions and MESA's COLAs are based upon the University's percentage adjustment, unevenness in compensation exists among MESA project staff.

Not evident from the display is the fact that in 1988, the private sector support was provided by 60 corporations and private foundations that represent a spectrum of national and California-based engineering firms and public utility corporations.

In addition to direct monetary donations from business and industry, each year MESA receives an impressive array of personnel and service contributions. While it is difficult to categorize these contributions precisely and to translate these expenditures into dollars, Display 2 on page 8 summarizes these private-sector contributions and provides an estimate of their value for the 1988 fiscal year.

That display, in combination with Display 1, evidences a commitment to MESA of nearly $3 million on the part of industry in that year. In addition to the commitment of various types of services, industry contributed over 8,800 personnel hours in that year to MESA -- an extraordinary investment of time on the part of corporations. Finally, these contributions, although they are supplementary to the direct financial support received from the private sector, provide invaluable support to the program. If MESA were required to expend resources for these services and personnel, the program would be unable to do so within its present budget, and the result would be a diminution in the quality of the program.

*DISPLAY 1 Resources Allocated to MESA During Fiscal Years 1985 to 1988, by Allocation Source**

	1985	1986		1987		1988	
Allocation Source	Amount	Amount	Percent Change	Amount	Percent Change	Amount	Percent Change
Private Sector	$751,723	$1,071,322	42.5%	$1,268,471	18.4%	$1,357,849	7.0%
State Resources	$1,291,000	$1,675,000	20.4%	$1,939,318	15.8%	$1,988,835	2.6%
Total Funds	$2,142,723	$2,746,322	28.1%	$3,207,789	16.8%	$3,346,684	4.3%
Private/State Ratio	0.54	0.64		0.65		0.68	

* Excludes contributions from the public schools in the form of teacher release time or volunteer time.

Source: California Postsecondary Education Commission.

*DISPLAY 2 Private Sector Contributions of Personnel and Services to MESA in Fiscal Year 1988**

Type of Contribution	Description of Contribution	Estimated Value
Personnel		
Executives on Loan	13 people full-time	$ 895,000
Executives tutoring, attending meetings, conducting facility tours, making presentations	8,810 hours at an average of $50 per hour	440,500
Services		
Printing	Various brochures, pamphlets, invitations	28,233
Meeting Expenses	Facilities, Catering	56,621
Media Production	Videotape	5,000
Equipment	Calculators, Copiers, Fax Machines, Software Packages, Computers	138,650
Travel	For students, advisors, and staff	6,450
Total		$1,570,454

* Excludes contributions in the form of private scholarships and summer jobs for MEP students.

Source: California Postsecondary Education Commission.

3 *MESA's Policy-Making Processes*

ASSEMBLY BILL 610 states that:

> the MESA program shall be administered as a public service program through a cooperative effort involving the Superintendent of Public Instruction, the Regents of the University of California, the Trustees of the California State University, the Board of Governors of the California Community Colleges, private industry, engineering societies, and professional organizations.

MESA's Board of Directors is the embodiment of that cooperative effort. The legislation prescribes in general terms the composition of the board and delineates its specific roles. Further, it directs the Postsecondary Education Commission to report on the extent to which this Board is functioning in accordance with the law. In this section of the document, the Commission does so.

Composition of MESA's Board of Directors

The law states that the composition of MESA's Board of Directors should represent secondary educational institutions, postsecondary educational institutions, and the private sector. MESA's Bylaws specify that the board should be comprised of a maximum of 20 individuals appointed by the chancellor of the University of California, Berkeley. Presently, the board consists of five secondary representatives; six postsecondary members, representing each of the public and independent higher education systems in the State; six private sector representatives; and three members representing community agencies. The list of its present members is contained in Appendix C of this report.

The Commission's survey of these board members indicated a general consensus that the size of the group was adequate and MESA's various constituencies were represented appropriately.

Responsibility of MESA's Board of Directors

AB 610 assigns a set of responsibilities to the board, and these duties and the extent to which each of them is being discharged adequately are discussed in sequence below.

Policy-maker

MESA's board functions in an advisory capacity to the Statewide Office and the campus administrators responsible for the program. As such, it recommends broad policy directions for the program. For example, recently the Statewide Office proposed a new administrative structure for board consideration. Following that discussion, the board made a recommendation with respect to the proposal that was influential in the final action taken by the Statewide Office.

Resource procurer

As Displays 1 and 2 on the preceding pages illustrate, the board has been successful in assisting MESA to secure resources. In particular, the extraordinary array of resources provided by the private sector demonstrates the board's success in this role. While the process for obtaining State resources, as described in the preceding section, is less responsive to board influence, individual board members have often assisted the program to secure State resources. Further, the postsecondary members from the various systems are positioned to support the budgetary requests of MESA within their own administrative structures. The appropriation of $250,000 to the MEP centers in the State University is an example of the influence that the Board can exert on individual systems with respect to increasing State resources.

Overseer of fiscal operations

MESA's director provides the board with quarterly

financial reports. When major decisions concerning the financial condition of the program are being considered, the board provides counsel. Additionally, it makes recommendations on the allocation of resources among components as well as on the appropriateness of expending resources to expand the program in particular directions.

Evaluator

The board receives information regularly on the performance of participants in the program. However, the board members responding to the Commission's survey indicated that they were interested in increasing their level of involvement in this phase of the program.

Participation solicitor

According to the law, the board is charged with enhancing public, governmental, and industrial participation in MESA. Through its Industry Advisory Board and its Industry Technical Board, participation in the program has expanded considerably. This participation, illustrated in Display 2 above, demonstrates a laudatory level of industrial investment in the program.

Reviewers of personnel plans

The board is aware of, and participates in, major organizational decisions related to personnel matters, including the selection of the program's director. However, because the program is administered by the University, the Berkeley campus' policies and procedures govern personnel actions. In addition, the board participates in, and influences decisions on, the nature of the program's personnel structure. The recent proposal by the Statewide Office to regionalize the program staff was discussed with the board and its advice incorporated in that personnel decision.

Program effectiveness

Clearly, the critical measure of the extent to which a governance structure functions effectively is the success of the program. MESA has been demonstrably effective in achieving its goal. In each of the external evaluations conducted during the 1980s on individual components of the program, the findings indicate that the American Indian, Black, and Hispanic students who participate in MESA are better prepared for college, enroll in postsecondary institutions at a higher rate, are retained in these institutions in greater proportions, and graduate from college at a higher rate, than students generally in the State (UCLA Center for the Study of Evaluation, 1982; and California Postsecondary Education Commission, 1986).

More recent evidence provided by the Statewide Office indicates that:

- 86.4 percent of the MESA participants who graduated from high school in 1986 enrolled in college the following fall. This figure compares very favorably to the statewide average of 57.8 percent -- a figure that represents the college-going rates of all students, the majority of whom are Caucasians whose college participation rate has traditionally been higher than the rates of the student population served by MESA.
- Over 72 percent of the MESA participants who graduated from high school in 1986 enrolled in baccalaureate-granting institutions in California.
- The average score on college admissions tests for MESA participants is significantly higher than the statewide average.
- Of the college freshmen in 1986 who participated in MESA while in high school, 81 percent of those who declared a major were pursuing math-based degrees.
- Nearly two-thirds of all students participating in MEP either graduated with an engineering degree or are continuing their pursuit of that degree presently -- a rate significantly higher than that of all engineering students.

4 Conclusions and Recommendations

Summary

The MESA program is functioning in a manner consistent with the specifications of Assembly Bill 610 in several respects:

- MESA continues to function as a cooperative effort involving secondary and postsecondary educators in conjunction with private industry to prepare and encourage students from historically underrepresented backgrounds to prepare for, and succeed in, mathematics-based fields in college. This study substantiates that the community of individuals and corporations involved in MESA has grown over the years as have the financial, personnel, and service contributions to the program.
- The evidence indicates that MESA's Board of Directors is meeting its legislative mandate in terms of its composition and operations. The enthusiasm displayed by board members toward the program is apparent at meetings, in conversations, and in actions that contribute to the vitality of the program.
- Although the directive to conduct this study relates to the extent to which the administration and governance of the program are functioning as prescribed in the legislation, the effectiveness of the program in achieving its goals likewise is a concern to the State. In this regard, there is impressive evidence that participants in MESA are succeeding in mathematics-based disciplines in secondary school and college in higher proportions than their classmates statewide generally or in engineering programs specifically.
- There is no evidence to indicate that the intersegmentality of MESA has diminished since the shift to the University exclusively of its budgetary and administrative responsibilities. Indeed, this study indicates that there has been a budgetary expansion in terms of both State and private resources since its placement within the University's budgetary process. Similarly, the degree of participation in the program and on the Board of Directors by the gamut of educational representatives has enhanced over the last four years. However, MESA, like all intersegmental programs, has unique administrative and budgetary complications that will be discussed later in this section.

The success of MESA appears to be associated with three aspects of its administrative operations -- its collaborative nature, its development through planned expansion, and its reliance on ongoing evaluation.

Collaborative nature

MESA is an intersegmental educational program in several senses:

1. MESA functions on a daily basis at secondary school sites and involves teachers as integral program participants.
2. MESA centers reside on some campuses of all baccalaureate granting systems in California.
3. MESA has a Board of Directors whose members represent secondary schools and postsecondary institutions. Therefore, the program has interinstitutional support.

In addition to its intersegmental cooperative aspect in the educational arena, MESA collaborates with the private sector. The major involvement of business and industry in the program has long been one of its uniqueness and strengths. As such, the combined resources and commitment of both the education and private sectors contribute to the program's success and capacity to deliver services to students. In this respect, MESA incorporates one of the Commission's principles in *The Role of the Commission in Achieving Educational Equity: A Declaration of Policy* (1988) -- achievement of educational equity is the responsibility of all sectors of California life.

Planned expansion

Over the years, MESA has planned the expansion of its services in a deliberate manner. New compo-

nents are incorporated into the program design only upon stabilization of existing services and after broad-based discussions with constituents about the feasibility and nature of expansion.

For example, in deciding to initiate "the Junior MESA" component, discussions centered on the need to encourage students earlier in the secondary school careers to prepare for scientific and technological careers and to enroll in the proper sequence of academic courses. At that point, MESA obtained a major private foundation grant to provide the resources to begin this component on a pilot basis at three sites. On the basis of the success of this embryonic venture, it requested State resources for expansion of the component to all pre-college centers. This type of planned expansion appears to ensure the effectiveness of continuing components while attention is directed to new services.

Systematic evaluation

An appreciation of the relationship between effectiveness and evaluation has always been a hallmark of MESA. As such, evaluation is an integral part of the program's design. There is continuous information gathering by the Statewide Office for the purposes of documentation and program enhancement. In addition, two external evaluations have been conducted on program components in the last six years -- the UCLA Center for the Study of Evaluation's study of the pre-college component in 1982; and the Commission's analysis of the college program in 1986. Because of the reliance on internal and external evaluations, the program consistently is positioned to improve its delivery of services to students.

In conclusion, MESA is a program whose administrative operations and policy-making processes are functioning in accordance with the law and whose effectiveness can be measured in terms of the extent to which programmatic goals are achieved. Secondary school educators, postsecondary administrators and faculty, and private sector executives and managers cooperate in providing services to students whose success will contribute to the State's future through expansion of its scientific and technological expertise.

Conclusions and recommendations

Based on the foregoing analysis, the Commission offers the following four conclusions and recommendations -- two that are specific to MESA; and two that relate to intersegmental programs in general.

MESA-specific conclusions and recommendations

Conclusion 1: MESA has been effective in designing and implementing programs that increase the number of American Indian, Black, Mexican-American and Puerto Rican students who are academically prepared to enter and succeed in math-based courses and disciplines in secondary school and postsecondary institutions. Additionally, the administrative operations and policy-making processes of the program are functioning efficiently and effectively.

Recommendation 1: Given its effectiveness, the sunset date clause of MESA should be removed from statute.

Conclusion 2: MESA receives both direct financial support and indirect contributions in terms of personnel and services from the private sector. The program can readily account for the direct financial support in accordance with the stipulation in the legislation about matching funds. As the indirect private sector contributions are unique and worthy of emulation by other programs, the nature and value accrued from this support is of interest to the State.

Recommendation 2: Because MESA depends heavily on support from the private sector, particularly in terms of personnel and services, to enrich the educational experience for participating students, it should improve its capacity to account for these indirect contributions.

General conclusions and recommendations on intersegmental programs

Conclusion 3: A major factor in MESA's effectiveness is the involvement of the private sector in terms of its direct financial support, its indirect assistance through personnel and service contributions, and ac-

tive presence on its Board of Directors. To be sure, the private sector investment in MESA has both altruistic and self-interest dimensions. Altruistically, business and industry anticipate that their support will contribute to the general health of the State. In terms of self-interest, the private sector investment is expected to result in a competent workforce of the future from which these corporations will benefit with respect to both the consumer base and staffing requirements. Notwithstanding the reasons for the support, private sector involvement is the mechanism through which MESA offers an expanding program of enriched educational experiences to participating students, particularly in a time of constrained State resources.

Recommendation 3: Intersegmental programs designed to improve the preparation and success of students for college, especially those students from underrepresented backgrounds, should seek to enhance their involvement with the private sector.

In this regard, the Commission will convene a symposium to provide an opportunity for staff of intersegmental student preparation programs to develop strategies for involving representatives of the private sector in their projects and for forging greater educational and industrial cooperation. Included in this symposium will be members of the MESA staff and boards as well as members of the California Business Roundtable and other private sector organizations.

Conclusion 4: MESA and other intersegmental programs are alike in two respects:

1. Their goals are general and global, not system or institutionally specific.

2. Their administrative placement within a system or agency causes them to be dependent primarily upon that body for support operationally and budgetarily. In the case of MESA, that system is the University of California; other intersegmental programs are placed within the State University (i.e., California Academic Partnership Program), Community Colleges (i.e., Transfer Centers), State Department of Education (i.e., College Admissions Test Preparation Program), and Student Aid Commission (i.e., California Student Opportunity and Access Program).

While their uniqueness and value are derived from their focus on general goals in contrast to specific system or agency priorities, this focus results in an operational and budgetary vulnerability for intersegmental programs, irrespective of their administrative placement. Simply put, it is unrealistic to expect that any system or agency, particularly in times of constrained fiscal resources, will seek State resources for a program with global postsecondary goals in contrast to a specific institutional or agency priority. The segments have made considerable progress in recent years in developing an intersegmental budget process to address these concerns; however, resource constraints threaten its continued development. Furthermore, not all intersegmental programs are part of this process. Because an intersegmental approach has proven to be valuable in achieving State goals, the budgetary process by which these programs receive State resources should be reviewed for the purpose of improving their capacity to focus on developing policy and programmatic direction and engaging in strategic planning rather than focusing on short-term survival tactics.

Recommendation 4: The Commission should review the current process established by the systems for reviewing intersegmental program budgets as a first step in developing recommendations for the State with respect to a budgetary process that is responsive to the administrative and programmatic uniqueness of all intersegmental programs and practices.

Staff will prepare a prospectus for review by the Commission that will guide the development of alternatives for requesting, prioritizing, and allocating State resources to support effective existing and new intersegmental programs. Through a consultative process involving systemwide representatives, experts in State budgetary procedures, and intersegmental program administrators, the Commission anticipates that consensus can be reached on alternatives to recommend to the State for providing its resources to intersegmental programs.

Appendix A Assembly Bill 610 (1985)

CHAPTER 3.5. MATHEMATICS, ENGINEERING, AND SCIENCE ACHIEVEMENT PROGRAM

Article 1. General Program

8600. The Legislature hereby recognizes that the connections made between the public and private sectors through the Mathematics, Engineering, and Science Achievement (MESA) program have resulted in better preparation of underrepresented students for college in mathematics- and science-based fields.

The Legislature further recognizes that the imposition of additional high school mathematics and English course requirements for admission to the University of California and the California State University requires that underrepresented students who aspire to professions in mathematics- and science-based fields be placed in the appropriate courses and receive comprehensive career counseling in grades 6 through 9.

It is the intent of the Legislature that the MESA program continue to coordinate the efforts of private industry and the segments of public education to improve the preparation of underrepresented students for college in math- and science-based fields, and that the MESA program operate under the guidance of its advisory board composed of representatives from private industry and the segments of public education.

8601. The Mathematics, Engineering, and Science Achievement (MESA) program is a cooperative effort by secondary and postsecondary educational institutions, working with private industry, to increase the number of students who graduate from college or university with the academic skills needed to gain employment in engineering, mathematics, and science-related professions in California. The goals of the program shall include, but not be limited to, all of the following:

(a) To increase the number of low-income and ethnic minority secondary school students who are adequately prepared in mathematics and science to pursue a mathematics-based course of study in college.

(b) To provide supplemental services at the college and university level which will result in a higher retention rate of low-income and ethnic minority students majoring in engineering, computer science, and other mathematics-based fields.

(c) To increase the number of college and university graduates from ethnic minority backgrounds who secure employment and careers in mathematics-based fields such as engineering, management, and computer service.

8602. (a) To accomplish the goals set forth in Section 8601, the program shall include the following two components:

(1) Precollege programming, including, but not limited to, services provided to pupils in grades 6 to 12, inclusive.

(2) College and university level programming, including, but not limited to, services provided to students who enter college after receiving MESA precollege services.

(b) The programming specified in subdivision (a) shall include, but not be limited to, services designed to accomplish all of the following:

(1) Encourage students in the secondary schools, with a particular emphasis on students in grades 9 to 12, inclusive, to acquire the academic skills needed to study mathematics, engineering, or related sciences at the postsecondary level.

(2) Promote students' awareness of career opportunities and the skills necessary to realize those opportunities sufficiently early in the students' educational careers to permit and encourage them to acquire those skills.

(3) Promote cooperation among postsecondary educational institutions, the Superintendent of Public Instruction, and school districts in working towards achieving the goals of the program.

(4) Solicit contributions of time and resources from public and private postsecondary educational institutions, high schools, and private business and industry.

8604. Subject to the approval of the Regents of the University of California, the MESA program shall be administered as a public service program through a cooperative effort involving the Superintendent of Public Instruction, the Regents of the University of California, the Trustees of the California State University, the Board of Governors of the California Community Colleges, private industry, engineering societies, and professional organizations.

8606. (a) A MESA advisory board shall be established, and shall include, but not be limited to, representatives from all of the following:

(1) Private business and industry.

(2) Secondary educational institutions.

(3) Postsecondary educational institutions.

(b) The MESA advisory board shall do all of the following:

(1) Develop and recommend goals, objectives, and general policies for the operation and improvement of MESA.

(2) Assist in securing financial, human, and other resources for MESA from private and public sources.

(3) Review the fiscal affairs of MESA.

(4) Continuously evaluate the success of MESA in meeting the goals specified in Section 8601.

(5) Attract and enhance public, governmental, and industrial participation in MESA.

(6) Review general personnel plans for MESA.

8608. State funding for the MESA program shall be provided on a matching basis, so that the total dollar amount received from private sources equals at least 50 percent of the total dollar amount provided by the state.

8609. Prior to January 1, 1989, the California Postsecondary Education Commission shall report to the Legislature regarding all of the following:

(a) Whether MESA is operating as a cooperative effort of secondary and postsecondary educational institutions working with private industry, as specified in Section 8604.

(b) Whether the MESA advisory board is functioning as specified in Section 8606.

(c) Recommendations for the improvement of MESA operations, as appropriate and consistent with legislative intent stated in Section 8600.

8610. Commencing on January 1, 1988, the Regents of the University of California shall submit an annual report to the Legislature regarding the number of students served by MESA, and the success of the program in fulfilling the goals specified in Section 8601. The report shall be submitted on or before January 1 of each year.

Article 2. Model Engineering and Science Career Preparatory Program

8612. To supplement existing precollege programming, the MESA program shall develop a model comprehensive engineering and science career preparatory program designed to increase junior high school pupils' awareness of, and preparation for, career options in engineering and science. The objectives of the program shall be all of the following:

(a) To increase the pool of low-income and ethnic minority students who complete junior high school prepared to embark upon a college preparatory high school program which includes four years of coursework in mathematics, English, and science, respectively.

(b) To increase the number of low-income and ethnic minority junior high school students who complete prealgebra and pregeometry courses.

(c) To enhance the content and consistency of general mathematics and science junior high school curricula.

(d) To provide junior high school teachers with in-service and other training opportunities which improve the quality of their instruction and their interaction with students.

The model program shall emphasize providing services to pupils in grades 6 to 9, inclusive, and shall include the involvement of industry and practicing engineers.

8614. In order to properly test and evaluate the model program developed pursuant to Section 8612, MESA shall establish pilot projects at a minimum of three centers located throughout California. Each center shall serve an area which includes at least four junior high schools and approximately 130 students.

8616. The California Postsecondary Education Commission shall evaluate the effectiveness of the pilot projects established pursuant to Section 8614. On or before September 1, 1989, the commission shall submit to the Legislature a report summarizing the evaluation, including, but not limited to, its recommendations regarding the merits of the model program.

8618. The sum of one hundred seventy-five thousand dollars ($175,000) is hereby appropriated from the General Fund to the University of California for the 1985–86 fiscal year, for allocation to the Mathematics, Engineering, and Science Achievement (MESA) program for purposes of funding the pilot projects established pursuant to Section 8614:

(b) It is the intent of the Legislature that funding for the continuation of the pilot projects established pursuant to Section 8614 through the 1988–89 fiscal year be provided through the appropriation for the University of California provided in the annual Budget Act.

(c) The funds appropriated for purposes of funding the pilot projects established pursuant to Section 8614 shall not be available for expenditure in any fiscal year unless the MESA program obtains one hundred seventy-five thousand dollars ($175,000) in matching funds from the private sector for that fiscal year. Upon certification by the program of the availability of matching funds, the Regents of the University of California shall transfer an amount equal to the amount of matching funds to the MESA program.

Article 3. General Provisions

8620. No provision of this chapter shall apply to the University of California unless the Regents of the University of California, by

resolution, make that provision applicable.

8622. This chapter shall become inoperative on June 30, 1990, and, as of January 1, 1991, is repealed, unless a later enacted statute, which becomes effective on or before January 1, 1991, deletes or extends the dates on which it becomes inoperative and is repealed.

SEC. 2. This act is an urgency statute necessary for the immediate preservation of the public peace, health, or safety within the meaning of Article IV of the Constitution and shall go into immediate effect. The facts constituting the necessity are:

In order to provide funding for the establishment of pilot projects pursuant to the provisions of this act in the 1985–86 fiscal year, it is necessary that this act take effect immediately.

O

Appendix B MESA's *Industry Advisory Board*

Ryutano Baba
Vice President of the Administration Group
Ricoh Electronics, Inc.

David R. Barclay
Human Resource Development Director
Hughes Electronics of Hughes Aircraft Company

Mike Beasley
Business Professional Products Manager
IBM Corporation

Willard T. Chamberlain
Senior Vice President
ARCO

Rogg Collins
Corporate Director and Community Liaison
Northrop Corporation

David W. Crain
Engineer in the Computer Science Division
Southern California Gas Company

Russ Cunningham
Vice President
Pacific Gas and Electric Company

Art Dauer
Director of Personnel
Hewlett Packard Company

Robert H. Friesen
Vice President of the General Products Division
IBM Corporation

George J. Gleghorn
Vice President and Chief Engineer for Space and Technology
TRW, Inc.

Dennis Heller
Human Resources Director
Northern Telecom, Inc.

John H. Hunt
Personnel Manager
Southern California Edison

Jean Paul Jacobs
Almaden Research Center
IBM Corporation

Otto K. Kjos
Vice President for Engineering and Operations Services-Western Operations
Fluor Daniel

C. H. Mackdanz
Industrial Relations Vice President
Chevron, U.S.A.

C. L. McMillan
Vice President for the Division of Human Resources and Administrative Services, Valley Systems Division
General Dynamics

David Morse
Employee Placement Director
Pacific Bell of Pacific Telesis

Glenn Palmer
Division Employee Relations Manager
Exxon, U.S.A.

Ken Patton
Compliance and Urban Affairs Director
Rockwell International

James R. Poling
Vice President of Human Resources
General Telephone of California

John Rolwing
Deputy Manager of Personnel
Bechtel Power Company of the Bechtel Group, Inc.

A. J. Schiewe
Vice President of Laboratory Operations
Aerospace Corporation

Charles Smith
Executive Director of Pacific Bell
Pacific Telesis

George Weida
Vice President of Human Resources
San Diego Gas and Electric Company

S. Dwight Wheeler
Vice President for Human Resources
Litton Guidance and Control Systems

Appendix C *MESA's Board of Directors*

Ed Apodaca
Director of Admissions and Outreach Services
University of California

Tomas Arciniega
President
California State University, Bakersfield

Lawrence J. Baack
Community Relations Manager
Pacific Gas and Electric Company

Herbert Carter
Executive Vice Chancellor
California State University

R. M. Collins
Consultant
Bechtel Corporation (Formerly)

Ramon Cortines
Superintendent
San Francisco Unified School District

Eugene Cota-Robles
Assistant Vice President, Academic Affairs
University of California

Fred Easter (ex-officio)
MESA Statewide Director
University of California, Berkeley

Marjorie Gardner (ex-officio)
Lawrence Hall of Science Director
University of California, Berkeley

Rod Hanks
Human Resources Director
Lockheed California Corporation

Kati Haycock
Executive Director
The Achievement Council

Gene A. Houston
Northwestern Region 11 Manager
IBM Corporation

Kaye Kiddoo
Director
State Department of Employment Development

Raymond Landis
Dean of the School of Engineering and Technology
California State University, Los Angeles

Juan F. Lara
Executive Director of the Center for Academic
Interinstitutional Programs
UCLA Graduate School of Education

Joseph P. Linscomb
Deputy Superintendent for Instruction
Pasadena Unified School District

Povindar K. Mehta (ex-officio)
Associate Professor
University of California, Berkeley

Richard E. Pesqueira
Executive Director of the Western Regional Office
The College Entrance Examination Board

Mary Perry Smith (ex-officio)
Consultant
MESA Statewide Office

Charles Smith
Executive Director
Pacific Telesis Group

Shirley Thornton
Deputy Superintendent for Specialized Programs
State Department of Education

S. Dwight Wheeler
Vice President for Human Resources
Litton Guidance and Control Systems

References

California Postsecondary Education Commission. ***Administration of MESA (Mathematics, Engineering, Science Achievement): A Report to the Legislature in Response to Supplemental Language in the 1984-85 Budget Act***. Commission Report 85-4. Sacramento: The Commission, January 1985.

--. ***Retention of Students in Engineering: A Report to the Legislature in Response to Senate Concurrent Resolution 16 (1985)***. Commission Report 86-33. Sacramento: The Commission, December 1986.

--. ***The Role of the California Postsecondary Education Commission in Achieving Educational Equity in California***. Commission Report 88-31. Sacramento: The Commission, September 1988.

--. The Role of the Commission in Achieving Educational Equity: A Declaration of Policy. Commission Report 88-42. Sacramento: The Commission, December 1988.

UCLA Center for the Study of Evaluation. *MESA Evaluation: Options and Opportunities*. Los Angeles: The Center, December 1982.

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

THE California Postsecondary Education Commission is a citizen board established in 1974 by the Legislature and Governor to coordinate the efforts of California's colleges and universities and to provide independent, non-partisan policy analysis and recommendations to the Governor and Legislature.

Members of the Commission

The Commission consists of 15 members. Nine represent the general public, with three each appointed for six-year terms by the Governor, the Senate Rules Committee, and the Speaker of the Assembly. The other six represent the major segments of postsecondary education in California.

As of January 1989, the Commissioners representing the general public are:

Mim Andelson, Los Angeles
C. Thomas Dean, Long Beach
Henry Der, San Francisco
Seymour M. Farber, M.D., San Francisco
Helen Z. Hansen, Long Beach
Lowell J. Paige, El Macero, *Vice Chairperson*
Cruz Reynoso, Sacramento
Sharon N. Skog, Palo Alto, *Chairperson*
Stephen P. Teale, M.D., Modesto

Representatives of the segments are:

Yori Wada, San Francisco; representing the Regents of the University of California

Claudia H. Hampton, Los Angeles; representing the Trustees of the California State University

John F. Parkhurst, Folsom; representing the Board of Governors of the California Community Colleges

Harry Wugalter, Thousand Oaks; representing the Chairman of the Council for Private Postsecondary Educational Institutions

Kenneth L. Peters, Tarzana; representing the California State Board of Education

James B. Jamieson, San Luis Obispo; representing California's independent colleges and universities

Functions of the Commission

The Commission is charged by the Legislature and Governor to "assure the effective utilization of public postsecondary education resources, thereby eliminating waste and unnecessary duplication, and to promote diversity, innovation, and responsiveness to student and societal needs."

To this end, the Commission conducts independent reviews of matters affecting the 2,600 institutions of postsecondary education in California, including Community Colleges, four-year colleges, universities, and professional and occupational schools.

As an advisory planning and coordinating body, the Commission does not administer or govern any institutions, nor does it approve, authorize, or accredit any of them. Instead, it cooperates with other state agencies and non-governmental groups that perform these functions, while operating as an independent board with its own staff and its own specific duties of evaluation, coordination, and planning.

Operation of the Commission

The Commission holds regular meetings throughout the year at which it debates and takes action on staff studies and takes positions on proposed legislation affecting education beyond the high school in California. By law, the Commission's meetings are open to the public. Requests to address the Commission may be made by writing the Commission in advance or by submitting a request prior to the start of a meeting.

The Commission's day-to-day work is carried out by its staff in Sacramento, under the guidance of its executive director, Kenneth B. O'Brien, who is appointed by the Commission.

The Commission issues some 40 to 50 reports each year on major issues confronting California postsecondary education, and it makes these publications available without charge while supplies last.

Further information about the Commission, its meetings, its staff, and its publications may be obtained from the Commission offices at 1020 Twelfth Street, Third Floor, Sacramento, CA 98514; telephone (916) 445-7933.

The Effectiveness of the Mathematics, Engineering, Science Achievement (MESA) Program's Administrative and Policy-Making Processes

California Postsecondary Education Commission Report 89-4

ONE of a series of reports published by the Commission as part of its planning and coordinating responsibilities. Additional copies may be obtained without charge from the Publications Office, California Postsecondary Education Commission, Third Floor, 1020 Twelfth Street, Sacramento, California 95814-3985.

Recent reports of the Commission include:

88-32 A Comprehensive Student Information System, by John G. Harrison: A Report Prepared for the California Postsecondary Education Commission by the Wyndgate Group, Ltd. (September 1988)

88-33 Appropriations in the 1988-89 State Budget for the Public Segments of Higher Education: A Staff Report to the California Postsecondary Education Commission (September 1988)

88-34 Legislation Affecting Higher Education Enacted During the 1987-88 Session: A Staff Report to the California Postsecondary Education Commission (October 1988)

88-35 Meeting California's Adult Education Needs: Recommendations to the Legislature in Response to Supplemental Language in the 1988 Budget Act (October 1988)

88-36 Implementing a Comprehensive Student Information System in California: A Recommended Plan of Action (October 1988)

88-37 Proposed Establishment of San Jose State University's Tri-County Center in Salinas: A Report to the Governor and Legislature in Response to a Request by the California State University for Funds to Create an Off-Campus Center to Serve Monterey, San Benito, and Santa Cruz Counties (October 1988)

88-38 Progress in Implementing the Recommendations of the Commission's 1987 Report on Strengthening Transfer and Articulation: A Staff Report to the California Postsecondary Education Commission (October 1988)

88-39 Proposition 98 -- The Classroom Instruction Improvement and Accountability Act: A Staff Analysis for the California Postsecondary Education Commission (October 1988)

88-40 The Fourth Segment: Accredited Independent Postsecondary Education in California. The Fifth in a Series of Reports on the Financial Condition of California's Regionally Accredited Independent Colleges and Universities (December 1988)

88-41 Beyond Assessment: Enhancing the Learning and Development of California's Changing Student Population. A Report in Response to the Higher Education Talent Development Act of 1987 (Assembly Bill 2016; Chapter 1296, Statutes of 1987) (December 1988)

88-42 The Role of the Commission in Achieving Educational Equity: A Declaration of Policy (December 1988)

88-43 Education Needs of California Firms for Trade in Pacific Rim Markets: A Staff Report to the California Postsecondary Education Commission (December 1988)

88-44 Progress on the Development of a Policy for Revenue Collected by the California State University Through Concurrent Enrollment: A Report to the Legislature in Response to Supplemental Language to the 1988-89 Budget Act (December 1988)

88-45 Prepaid College Tuition and Savings Bond Programs: A Staff Report to the California Postsecondary Education Commission (December 1988)

89-1 Legislative Priorities for the Commission, 1989: A Report of the California Postsecondary Education Commission (January 1989)

89-2 The Twentieth Campus: An Analysis of the California State University's Proposal to Establish a Full-Service Campus in the City of San Marcos in Northern San Diego County (January 1989)

89-3 Toward Educational Equity: Progress in Implementing the Goals of Assembly Concurrent Resolution 83 of 1984: A Report to the Legislature in Response to Assembly Bill 101 (Chapter 574, Statutes of 1987) (January 1989)

89-4 The Effectiveness of the Mathematics, Engineering, Science Achievement (MESA) Program's Administrative and Policy-Making Processes: A Report to the Legislature in Response to Assembly Bill 610 (1985) (January 1989)

89-5 Comments on the Community Colleges' Study of Students with Learning Disabilities: A Report to the Legislature in Response to Supplemental Report Language to the 1988 State Budget Act (January 1989)

89-6 Prospects for Postsecondary Enrollment to 2005: Report of the Executive Director to the California Postsecondary Education Commission, January 23, 1989 (January 1989)